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Prepn. of powder lipid vessicles - by polymerising lipid membrane compsns. contg. hydrophilic material, adding low mol. wt. sugar to outer aq. phase and lyophilising

C93-116520
Addnl. Data: SEISAN KAIHATSU KAGAKU KENKYUS (SEIS)

A(3-A, 12-V1, 12-V2) B(1-D2, 4-B1B, 4-B4D2, 5-B1P, 10-C4E, 12-H6, 12-M11F) D(9-C1B)

Prepn. comprises polymerisation of lipid membrane compositions of the vesicles contg. hydrophilic substance, adding sugar with mol. wt. of 1200 or less to the outer aq. phase of the vesicles, and lyophilising the aq. dispersion of the vesicles.

USE/ADVANTAGE - Superior in terms of no leakage of the hydrophilic substance from the aq. phase of the vesicle, no change in the particle size of the vesicle, and easy removal of the added sugar on redispersion. It is stable on long term storage and is used as drug delivery system and artificial blood.

In an example, to 50 g of powder lipid mixture of 1,2-di(octadeca -2,4-dienoyl) -sn-glycero-3 -phosphocholine, palmitic acid and cholesterol) 10:3:0, molar ratio) was added 1 litre of 30 g/dl (w/v) carbon monoxide complex of haemoglobin, and stirred at 4 deg.C for 15 hours. The obtd. suspension was passed through porous polycarbonate membrane with hole dia. of 8.0 to 0.4 micron in sequence to give lipid vesicle dispersion containing a haemoglobin. Gamma-ray was irradiated to the lipid vesicle dispersion in the vial for polymerisation. Each 100 ml of the dispersion was placed into the flask, and glucose added at 125 mM. The dispersion was lyophilised at -85 deg.C. The obtd. lyophilised red powder showed 281 +/- nm particle size and 2.9% leakage of haemoglobin when redispersed. (8pp Dwg.No.0/0)